

## CLAIM AMENDMENTS

1           1. (currently amended) (original) Method for measuring  
2 the polarization mode dispersion of an optical fiber applying an  
3 optical signal to a first end of the fiber [{{11}}] and coupling a  
4 second end of the fiber [{{111}}] to an interferometer [{{25}}],  
5 said method comprising the step of:

6           generating by means of said interferometer [{{25}}] at  
7 least one interferogram comprising at least a central peak and two  
8 side lobes having a determined information content; and being  
9 characterized by the steps of

10           processing said interferogram in such a way as to measure  
11 the information content of at least one of said two side lobes;  
12 and

13           determining the polarization mode dispersion of the fiber  
14 associating to said measurement of said information content a  
15 probability density function representative of the polarization  
16 mode dispersion [{{PMD}}] of the fiber in the form of differential  
17 group delay.

1           2. (currently amended) The method as claimed in claim 1  
2 characterized in that said step of determining the polarization  
3 mode dispersion comprises the step of

4           computing the deconvolution of said at least one side  
5 lobe with said central peak so that said deconvolution corresponds

6 to the probability density of the differential group delay deter-  
7 mined by the PMD of the fiber.

1 3. (currently amended) The method as claimed in claim 1  
2 [[or 2]] characterized by the additional step of  
3 determining an average of measurements of said informa-  
4 tion content whereto said probability density is to be associated.

1 4. (currently amended) The method as claimed ~~in any of~~  
2 ~~the previous claims~~ claim 1, characterized in that said information  
3 content comprises a single numeric value determined by the position  
4 of said at least one side lobe in the interferogram.

1 5. (currently amended) The method as claimed in ~~claims~~  
2 ~~1 through 3~~ claim 1 characterized in that said information content  
3 comprises a plurality of values determined by the position of said  
4 at least one side lobe in the interferogram.

1 6. (currently amended) A computer product able to be  
2 directly loaded in the internal memory of an electronic measuring  
3 device and comprising portions of software code to implement the  
4 method as claimed in ~~any of the claims from 1 to 5~~ claim 1 when the  
5 product is run on said electronic device.

1           7. (currently amended) A system for measuring the  
2 polarization mode dispersion of an optical fiber, comprising  
3           an optical source ~~[[21]]~~ able to generate an optical  
4 signal to be injected into the fiber ~~[[11]]~~ ;  
5           an interferometer ~~[[25]]~~ associated to the fiber and  
6 able to generate an interferogram comprising at least a central  
7 peak and two side lobes having a determined information content;  
8 characterized by  
9           a device ~~[[27]]~~ connected to said interferometer and  
10 able to  
11                   process said interferogram in such a way as to  
12                   measure the information content of at  
13                   least one of said side lobes; and  
14           ~~determining~~ determine the polarization mode  
15           dispersion of the fiber associating to  
16           said measurement of said information con-  
17           tent a probability density function repre-  
18           sentative of the polarization mode disper-  
19           sion ~~[[PMD]]~~ of the fiber in the form of  
20           differential group delay.

1           8. (currently amended) The system as claimed in claim  
2 7, characterized in that said device [[(27)]] comprises  
3           a first module able to compute the deconvolution of said  
4 at least one side lobe with said central peak so that said  
5 deconvolution corresponds to the probability density of the differ-  
6 ential group delay determined by the PMD of the fiber.

1           9. (currently amended) The system as claimed in claim 7  
2 [[or 8]], characterized in that said device comprises  
3           a second module able to determine an average of measure-  
4 ments of said information content whereto said probability density  
5 is to be associated.

1           10. (currently amended) The device for measuring the  
2 polarization mode dispersion of an optical fiber into which optical  
3 signals have been injected, comprising  
4           an opto-electronic module [[(37)]] able to convert the  
5 optical signals into electrical signals;  
6           a display device [[(35)]] able to generate an interfero-  
7 gram comprising at least a central peak and two side lobes having a  
8 determined information content; characterized by  
9           a control unit [[(30)]] able to  
10           measure the information content of at least one  
11           of said two side lobes; and

12                    ~~determining~~ determine the polarization mode  
13                    dispersion of the fiber associating to  
14                    said measurement of said information con-  
15                    tent a probability density function repre-  
16                    sentative of the polarization mode disper-  
17                    sion ~~[[PMD]]~~ of the fiber in the form of  
18                    differential group delay.

1                    11. (currently amended) The device as claimed in claim  
2                    10, characterized in that it comprises

3                    a first program module able to compute the deconvolution  
4                    of said at least a side lobe with said central peak so that said  
5                    deconvolution corresponds to the probability density of the differ-  
6                    ential group delay determined by the PMD of the fiber.

1                    12. (currently amended) The device as claimed in claim  
2                    10 ~~[[or 11]]~~, characterized in that it comprises

3                    a second program module able to determine an average of  
4                    measurements of said information content whereto said probability  
5                    density is to be associated.